CLAIMS:

1. A process for the deposition of particulate material of a desired substance on a surface is disclosed, the process comprising:

(i) charging a particle formation vessel, the temperature and pressure in which are controlled, with a compressed fluid;

(ii) introducing into the particle formation vessel at least a first feed stream comprising at least a solvent and the desired substance dissolved therein through a first feed stream introduction port and a second feed stream comprising the compressed fluid through a second feed stream introduction port, wherein the desired substance is less soluble in the compressed fluid relative to its solubility in the solvent and the solvent is soluble in the compressed fluid, and wherein the first feed stream is dispersed in the compressed fluid, allowing extraction of the solvent into the compressed fluid and precipitation of particles of the desired substance,

(iii) exhausting compressed fluid, solvent and the desired substance from the particle formation vessel at a rate substantially equal to the rate of addition of such components to the vessel in step (ii) while maintaining temperature and pressure in the vessel at a desired constant level, such that formation of particulate material in the vessel occurs under essentially steady-state conditions, wherein the compressed fluid, solvent and the desired substance are exhausted from the particle formation vessel through a restrictive passage to a lower pressure whereby the compressed fluid is transformed to a gaseous state and a flow of particles of the desired substance is formed, and

(iv) exposing a receiver surface to the exhausted flow of particles of the desired substance and depositing a uniform layer of particles on the receiver surface.

2. A process according to claim 1, wherein the compressed fluid comprises a supercritical fluid.

3. A process according to claim 2, wherein the supercritical fluid, solvent and desired substance are exhausted from the particle formation vessel by passage to an expansion chamber, and where the exhausted flow of particles of the

desired substance is then directed from the expansion chamber to the receiver surface to deposit the uniform layer of particles on the receiver surface.

4. A process according to claim 1, wherein particles of the desired substance are precipitating in the particle formation vessel with a volume-weighted average diameter of less than 100 nanometers.

5. A process according to claim 4, wherein the coefficient of variation of the particle size distribution of the particles of the desired substance precipitated in the particle formation vessel is less than 50%.

6. A process according to claim 5, wherein the coefficient of variation of the particle size distribution of the particles of the desired substance precipitated in the particle formation vessel is less than 20%.

7. A process according to claim 1, wherein particles of the desired substance are precipitating in the particle formation vessel with a volume-weighted average diameter of less than 50 nanometers.

8. A process according to claim 1, wherein particles of the desired substance are precipitating in the particle formation vessel with a volume-weighted average diameter of less than 10 nanometers.

9. A process according to claim 1, wherein contents of the particle formation vessel are agitated with a rotary agitator comprising an impeller having an impeller surface and an impeller diameter, creating a relatively highly agitated zone located within a distance of one impeller diameter from the surface of the impeller of the rotary agitator, and a bulk mixing zone located at distances greater than one impeller diameter from the surface of the impeller, and wherein the first and second feed stream introduction ports are located within a distance of one impeller diameter from the surface of the impeller of the rotary agitator such that the first and second feed streams are introduced into the highly agitated zone of the

particle formation vessel and the first feed stream is dispersed in the supercritical fluid by action of the rotary agitator.

10. A process according to claim 1, where the uniform layer deposited in step (iv) is a continuous film.

11. A process according to claim 1, where the desired substance deposited in step (iv) comprises a colorant in a polymeric binder.

12. A process according to claim 11, wherein the colorant comprises a dye.

13. A process according to claim 1, where the desired substance comprises a compound used to make organic electroluminescent devices.

14. A process according to claim 1, further comprising controlling deposition of particles in step (iv) with induction-, corona-, injection- or tribo-charging.

15. A process according to claim 14, wherein the induction-, corona-, injection- or tribo-charging increases the rate of deposition of the particles.

16. A process according to claim 14 in which the film is generated at ambient conditions of pressure and temperature and has but has an average surface roughness of less than 10 nm, calculated by WYCO NT1000 as the arithmetic average of the absolute values of the surface features from the mean plane.

17. A process according to claim 1, wherein the restrictive passage includes a partial-expansion chamber, in which the pressure of the compressed fluid, solvent and the desired substance exhausted from the particle formation vessel is partially decreased prior to passage through an expansion nozzle.